TABLE 3.   STATE AUTHORITY SPREADS ON STUDENT LOANS FINANCED WITH FIXED-RATE 7.5 PERCENT BONDS

T-Bill Rate	Spreads				Maximum Permissible Spreads[a]			
	Pre-10/1/80 7% Loans	7% Loans[b]	8% Loans[b]	9% Loans[b]	Pre-10/1/80 7% Loans	7% Loans	8% Loans	9% Loans
5.0	1.0	2.00	2.00	2.00	3.0	4.00	3.00	2.00
6.0	2.0	2.00	2.00	2.00	4.0	4.00	3.00	2.00
7.0	3.0	2.00	2.00	2.25	5.0	4.00	3.00	2.25
8.0	4.0	2.00	2.25	2.75	6.0	4.00	3.25	2.75
9.0	5.0	2.25	2.75	3.25	7.0	4.25	3.75	3.25
10.0	6.0	2.75	3.25	3.75	8.0	4.75	4.25	3.75
11.0	7.0	3.25	3.75	4.25	9.0	5.25	4.75	4.25
12.0	8.0	3.75	4.25	4.75	10.0	5.75	5.25	4.75
13.0	9.0	4.25	4.75	5.25	11.0	6.25	5.75	5.25
14.0	10.0	4.75	5.25	5.75	12.0	6.75	6.25	5.75
15.0	11.0	5.25	5.75	6.25	13.0	7.25	6.75	6.25

SOURCE: Congressional Budget Office.

a.   Under current law, the maximum permissible yield spread is equal to the SAP plus 1.5 percentage points. Where the maximum permissible spread is less than the actual spread, the difference, minus letter of credit and other fees associated with bond issuance, represents excess arbitrage profits that, if kept, might jeopardize tax-exemption of the bonds. The problem does not arise if the actual spread is equal to or smaller than the maximum.

b.   Based on the current formula for calculating the SAP. The SAP on loans originated between October 1, 1980, and October 1, 1981, is rounded up to the nearest one-eighth of 1 percent. Loans originated before October 1, 1980, are eligible for the full SAP.

Although recent bond issues are potentially quite profitable, not all bonds issued in the past few years have been so. Some agencies have issued bonds at variable rates between 70 percent and 75 percent of the T-bill rate, with minimum rates set between 5.5 percent and 6.0 percent. The spreads on 8 percent loans made from the proceeds of bonds yielding 75 percent of the T-bill rate, but not less than 6 percent, are generally sufficient and sometimes more than sufficient to cover costs, but they will not result in huge windfall profits (see Table 4).

Some authorities have issued fixed-rate bonds within the past two years at interest rates between 9.0 percent and 10.0 percent. The spreads on loans made from the proceeds of these bonds are much narrower, and, in some instances, authorities have used the surpluses from previous bond issues to pay issuing costs, underwriters' discounts, and letter of credit fees. This lowers the interest cost and thereby avoids negative arbitrage. For example, in December 1984, the Virginia Educational Loan Authority (VELA) issued $90 million in student loan bonds with a yield of 9.615 percent. VELA paid the issuance costs and the underwriter's discount from surpluses generated from earlier loans. As long as T-bill rates are below 11 percent or 12 percent, an authority making direct loans at 8 percent and paying borrowing costs of 9.5 percent either would have to pay administrative and servicing costs out of surplus funds, or it would have to find some other source of income. At T-bill rates above 12 percent, the spreads are more than sufficient to cover costs. As long as students are in school, the costs of carrying loans are small. If interest rates remain low, the agency can sell its loan portfolio to Sallie Mae before the beginning of the repayment period and use the proceeds to retire the bonds.

Taxable Financing

The practices of authorities and their cost of funds have varied. Much has depended on how much funding an authority has needed and when, the surpluses available from previous bond issues, and, in recent years, their ability to issue tax-exempt bonds.

Since October 1983, the Department of Education has approved special allowance payments for loans financed with tax-exempt bonds only upon being convinced that taxable financing was unavailable or infeasible. By and large, taxable sources of financing have been available, since Sallie Mae has been willing to make loans to student loan authorities. In 1985, state authorities' drawdowns of loans from Sallie Mae more than doubled from $235 million in 1984 to $556 million.

Taxable financing has not always been feasible, however, either because of state laws prohibiting authorities from borrowing at taxable rates, or because the loan spreads were insufficient to cover costs. Where Sallie Mae has provided the financing, the authorities have generally paid interest equal to T-bill rates plus 1.25 percentage points. The yield on student loans that are financed with taxable funds is equal to the bond equivalent T-bill rate plus 3.50 percentage points. The resulting spread of 2.25 percentage points may or may not be sufficient to cover costs, or it may be adequate in the early years of a loan, but not later because as loan

TABLE 4.   STATE AUTHORITY SPREADS ON 8 PERCENT STUDENT LOANS FINANCED WITH VARIABLE-RATE BONDS ASSUMING COST OF FUNDS AT 75 PERCENT OF T-BILL RATES

T-Bill Rate	Cost of Funds[a]	SAP	Return on 8 Percent Loans	Spread	Maximum Permissible Spread[b]
5	6.00	1.50	9.50	3.50	3.00
6	6.00	1.50	9.50	3.50	3.00
7	6.00	1.50	9.50	3.50	3.00
8	6.00	1.75	9.75	3.75	3.25
9	6.75	2.25	10.25	3.50	3.50
10	7.50	2.75	10.75	3.25	3.25
11	8.75	3.25	11.25	3.00	3.00
12	9.00	3.75	11.75	2.75	2.75
13	9.75	4.25	12.25	2.50	2.50
14	10.50	4.75	12.75	2.25	2.25
15	11.25	5.25	13.25	2.00	2.00

SOURCE: Congressional Budget Office.

a.   Assumes that authorities' cost of funds will average 75 percent of T-Bill rates, but not less than 6 percent.

b.   Under current regulations, the maximum permissible spread is equal to the SAP plus 1.5 percentage points. At present, letter of credit fees and other costs associated with issuing bonds do not count against that limit.

portfolios get smaller, servicing costs, as a percentage of outstanding principal, rise.7/

Some authorities--VELA, and the New England Education Loan Marketing Corporation (Nellie Mae), to name only two--have obtained taxable loans from foreign banks or from consortiums that have included foreign banks at rates as good or better than those offered by Sallie Mae. Since Sallie Mae and state student loan authorities compete with each other as purchasers of loans in the secondary market, many authorities prefer other sources of credit. These sources, however, are limited largely to foreign banks.8/ U.S. banks would have to charge more for their loans because their cost of borrowing is substantially higher than Sallie Mae's. 9/

Tax-Exempt Financing without SAPs

Instead of seeking taxable financing, in recent months a few authorities have issued tax-exempt bonds without the Department of Education's approval for special allowance payments. This has been possible because interest rates on variable-rate bonds have been low enough to provide the authorities with a wider spread than would be available with taxable financing. For bonds issued before January 1, 1986, which for some time was the official effective date for most of the provisions in pending tax legislation, authorities could invest the proceeds in nonpurpose obligations at unrestricted yields for up to three years. This provision in current law is

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7.   The issue between student loan authorities and the Department of Education is as likely to revolve around the assumptions underlying the computation of the spread as on its adequacy. In order to determine the financial feasibility of a loan, whether taxable or tax-exempt, it is necessary to project the amount of loans that will be made or acquired by certain dates; the amount and timing of student loan payments, federal interest subsidy and special allowance payments, including any lags; inflation rates and their effects on administrative and servicing costs; T-bill rates; average loan and account sizes; the proportion of loans in repayment or default relative to the total portfolio, and so forth. In projecting cash flows, student loan authorities have often reached conclusions on the feasibility of taxable financing that were different from those of the Education Department and Sallie Mae because the underlying assumptions were different.

8.   Large Japanese, Swiss, and German banks are making loans to state authorities on slightly better terms than Sallie Mae and much better terms that U.S. banks could offer. They more than make up for the difference in rates by selling participations in the loans to smaller, cash-heavy banks in their home countries.

9.   For example, in March 1985, Sallie Mae issued $350 million of four-floating-rate paying slightly more than 50 basis points above the 91 day T-bill rate. At the same time, Citicorp issued $100 million in three-year floating-rate notes yielding 75 basis points above the T-bill rate. See Congressional Budget Office, *Government-Sponsored Enterprises and Their Implicit Federal Subsidy: The Case of Sallie Mae* (December 1985), p. 14.

much more lenient than the Department of Education's regulations (see Chapter II). The more liberal arbitrage regulations in current law to some extent compensate the authorities for forgone special allowance payments.

Generally, authorities that have elected to use tax-exempt bonds without a SAP will issue securities with convertible financing features. If interest rates on long-term bonds drop to a desirable level, these issues will convert from variable-rate to fixed-rate instruments. All of these issues have letter of credit backing, so if short-term tax-exempt rates rise relative to taxable rates and the resulting spreads become too narrow, the authority can draw on its line of credit temporarily, call the bonds, and subsequently negotiate a taxable loan with a SAP. This approach provides the authorities with greater flexibility than simply opting for taxable financing either to avoid the approval process or in response to having an application for special allowance payments disapproved.

Where no special allowance payments are involved, tax-exempt student loan bonds are subject to the general arbitrage restrictions in current law. The authorities will have to keep track of their arbitrage earnings and if they exceed the permissible spread of 1.5 percentage points, plus administrative costs, they may forgive a portion of the student loan. (This restriction does not apply to investments in reserve funds or for temporary periods. For details on general arbitrage regulations, see Chapter II.)

SURPLUS FUNDS

Some authorities have accumulated surpluses that would cover possible shortfalls resulting from taxable or tax-exempt financing. The sources of these surpluses include not only the spreads between borrowing costs and loan yields, but also interest earned on reserve funds, unobligated bond proceeds, and retained earnings from previous years.

Reserves

The agencies that rate bonds require that a portion of each bond issue be set aside to cover debt service in case of revenue shortfalls. Under current law, authorities may set aside as much as 15 percent of a bond issue in a "reasonably required reserve and replacement fund." The likelihood that a student loan bond issue will default is small because federal guarantees secure the loans. The purpose of debt service reserve accounts is to compensate for insufficient revenues that might result, for example, from delinquent student loan payments or sharp reductions in interest rates and special allowance payments.

Frequently, authorities set aside less than the maximum amount permitted for debt service reserves. Although no two issues are alike, the common practice is to set aside 10 percent of the principal amount of a bond issue, or an amount equal to one year's debt service payments. The interest earned on debt service reserves is exempt from ordinary arbitrage restrictions. Over time, these reserves can themselves generate sizable surpluses.

Unobligated Bond Proceeds

In order to reduce arbitrage profits, the Department of Education's regulations have required authorities to begin using the proceeds of tax-exempt bonds within six months of issuing them and to expend the proceeds with one to two years. Where no special allowance payments are involved, the limit set by the tax code for making or buying loans is three years. During these temporary periods, authorities may earn unlimited arbitrage without incurring any penalties. The arbitrage earned during temporary periods is generally used to pay for issuing costs, which include underwriters' discounts, legal fees, and printing fees. These costs can amount to between 1 percent and 3 percent of a bond issue. In some cases, the three-year limit for using bond proceeds was more than sufficient to cover issuing costs and may have contributed to authorities' overestimating the amounts of student loan funds that they needed. For example, the California Student Loan Authority issued $120 million in bonds and used only $32 million before the three-year temporary period had ended. The Arizona Student Loan Finance Corporation has also used very little of a $100 million issue.

THE PROFITABILITY OF STUDENT LOAN AUTHORITIES

The spreads on student loan bonds, coupled with interest earned on debt service reserve funds and on unobligated bond proceeds, can make it possible for authorities to earn profits and accumulate surpluses. Some authorities, particularly those established before 1980, have been running profitable operations for many years.

Two measures of profitability are rates of return to equity and assets. The first measure is inapplicable to student loan authorities because they are nonprofit corporations with no equity investors. The authorities do have assets, however, and it is possible to compare the rates

of return on their income-earning assets with those of other financial inermediaries (see Table 5).10/

The annual rate of return on assets represents the excess of revenues over expenses as a percentage of average asset holdings during the year. The larger the percentage, the more profitable the operation. As Table 5 indicates, Sallie Mae's performance in the past few years has been superior to that of the largest commercial banks, and state student loan authorities frequently have been substantially more profitable than either. In other words, the arbitrage provisions in current tax law have made it possible for state student loan authorities to accumulate large cash surpluses from year to year.

Another measure of a financial intermediary's profitability is its net interest spread, which is the return on all earning assets minus the cost of all borrowed funds. Although this information was less readily available, the experience of the Minnesota Higher Education Coordinating Boad is fairly typical of older, established authorities. The Board has been a lender of second resort since 1974. Its assets at the end of 1984 amounted to nearly $500 million, and its net interest spread was 5.4 percent. Sallie Mae's net interest spread for the first nine months of 1985 was 1.73 percent.

THE USE OF SURPLUS FUNDS

Section 103(e) of the Internal Revenue Code states that nonprofit student loan corporations must use their net income (after making reserve fund deposits and paying debt service and expenses) either to purchase additional student loans or to make payments to the state or any of its political subdivisions. The Code imposes no restrictions on state use of surplus funds. This is much the same rule that applies to the profits of other tax-exempt bond authorities, but they are generally subject to yield restrictions that make it more difficult for them to accumulate large surpluses.

In general, authorities maintain separate funds for each bond issue. Surpluses accumulate in each fund. Once debt dervice requirements are met, authorities may transfer excess monies to an operating fund, which is used for rent, overhead, and other administrative expenses. At times, monies from the general fund are also used to pay bond issuance expenses and underwriters' discounts.

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10.   Although return on equity is the more common measure of profitability, for-profit financial institutions, particularly thinly capitalized intermediaries, frequently use return on assets as an indicator of performance because it is less responsive to small changes in equity.

TABLE 5.   RATES OF RETURN ON AVERAGE INCOME-EARNING
ASSETS FOR LARGE COMMERCIAL BANKS, SALLIE MAE,
AND SELECTED STUDENT LOAN AUTHORITIES

Institution	Percent Return on Assets[a]			
	1982	1983	1984	1985
Commercial Banks[b],[c]	0.64	0.56	0.53	0.70
Sallie Mae[c]	0.62	0.83	1.00	0.97
Arkansas Student Loan Authority	3.19	2.21	2.44	1.79
Colorado Student Obligation Bond Authority[d]	0.96	1.02	1.21	0.57
Kentucky Higher Education Student Loan Corporation	4.32[e]	0.49	1.50	1.04
Missouri Higher Education Loan Authority	NA	0.33	1.08	0.93
Minnesota Higher Education Coordinating Board	7.17	2.86	3.21	3.73
New Mexico Educational Assistance Foundation	3.36	2.40	1.97	1.61
South Dakota Student Loan Assistance Corporation	4.25	3.35	1.36	1.00[f]
Virginia Educational Loan Authority	4.35	1.84	0.83[f]	2.34

SOURCES: Federal Deposit Insurance Corporation, Sallie Mae, and annual reports and
official bond offering statements of student loan authorities listed above.

a.   Year ended June 30, unless otherwise indicated.

b.   Represents after-tax returns of banks with assets greater than $5 billion.

c.   Year ended December 31.

d.   Year ended September 30.

e.   Not comparable with succeeding years because of change in accounting procedures.

f.   After taking into account loss from early extinguishment of bonds.

In practice, most authorities use surpluses to make or purchase additional student loans or for related expenses, and many would welcome a change in the law that would require them to do so. At present, if a state wants to claim the surpluses for its general funds, as has happened, for example, in Texas, the authorities have little choice but to comply. Some authorities have made arrangements to turn over their surplus funds to related agencies. For example, the Kentucky Student Loan Corporation turns over its surpluses to the Kentucky Higher Education Assistance Authority, which, among other activities, guarantees and services its loans. In 1983, the Authority made a grant of $3.5 million to the state general fund as a one-time reimbursement for amounts previously appropriated to the Authority. In Wisconsin, surplus funds sometimes help pay administrative costs of the state's higher education grant and loan program.

Once sufficient surpluses have accumulated in an authority's general fund, spending on salaries, fringe benefits, and equipment and overhead may increase, unless the excess funds are necessary to cover bond issuance costs or related expenses. At present, authorities have extensive opportunities to accumulate surpluses and a great deal of discretion in using them.

THE COSTS TO THE FEDERAL GOVERNMENT

OF STUDENT LOAN BONDS

The major federal costs of student loan bonds stem from revenue forgone because interest on the bonds is not subject to federal income taxation. Student loan bonds may substitute for conventional financing, or they may provide a source of new funds. To the extent that the bonds make possible loans that otherwise would not be made, the additional funding will involve a further cost to the federal government. To the extent that tax-exempt bonds substitute for taxable sources of funds, lower budgetary outlays resulting from the reduced special allowance payments will offset revenue losses. Whether the offset is partial or complete depends on whether interest rates are high or low and on how revenue losses from tax-exempt bonds are measured.

In most cases, financing GSLs with tax-exempt bonds is more costly to the federal government than using taxable financing, primarily because of federal revenue losses. In a few cases, when Treasury bill rates are fairly high, tax-exempt financing may be less costly to the federal government. At current T-bill rates, tax-exempt financing of student loans is the more expensive alternative. Under present law, T-bill rates would have to be higher than 13 percent in order for tax-exempt financing to be a less costly source of student loan funds from the federal government's perspective. If, however, the Congress passes legislation lowering marginal tax rates, federal revenue losses from tax-exempt financing will decline.

PROBLEMS IN ESTIMATING REVENUE LOSSES

The amount of federal revenue loss stemming from the tax-exemption of interest on state and local bonds in general, and student loan bonds in particular, has been controversial for several years. The Congressional Budget Office, the Treasury Department, and the Joint Committee on Taxation have based their estimates of revenue loss on the view that tax-

exempt financing ultimately displaces taxable financing. When new issues of tax-exempt securities come to market, some investors will move from partially taxable to tax-exempt investments and others will switch from fully to partially taxable holdings. The cost to the federal government of providing tax exemption on state and local bonds in any year thus depends on the volume of bonds issued, the prevailing interest rates on alternative taxable securities, and the combined marginal tax rates of new investors in tax-exempt and partially tax-exempt securities. While bond volume and interest rates are matters of fact, the marginal tax rates of investors who switch from one type of security to another are difficult to estimate.

In the late 1970s, economists at the Treasury Department suggested that, since the significant measure in determining revenue loss is the net change in all portfolio holdings resulting from tax-exempt bond issues, the relevant marginal tax bracket would be a combination of the tax rates of the last investor who switches from partially taxable to tax-exempt holdings and the investor who moves from fully taxed to partially taxed holdings. This combined rate would roughly correspond to the spread between taxable and tax-exempt interest rates, which between 1970 and 1980 averaged about 30 percent for corporate and municipal bonds with similar ratings.1/ In the late 1970s and into the 1980s, CBO used this model--and the 30 percent marginal tax rate--to estimate revenue losses from tax-exempt bonds.2/

This method of measuring revenue losses rested on the assumption that investors seek to maximize after-tax income. This means that investors in marginal tax brackets below the yield spread would hold taxable securities; those in higher brackets would hold tax-exempt bonds. Several analysts criticized the model, arguing that it overstated revenue losses from tax-exempt bonds by ignoring the role that considerations of risk and liquidity play in determining investor behavior. The desire to maximize after-tax income, they maintained, was an insufficient basis for predicting

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1.   Harvey Galper and Eric Toder, "Modelling Revenue and Allocation Effects of the Use of Tax-Exempt Bonds for Private Purposes," U.S. Treasury, Office of Tax Analysis, Paper 44 (December 1980).

2.   The spread between long-term tax-exempt and taxable bonds has in recent years been between 20 percent and 25 percent. In the past few years, the Treasury Department and the Joint Committee on Taxation have used an average marginal tax rate of 35 percent in estimating revenue losses from tax-exempt bonds. This higher rate reflects purchases of tax-exempt bonds by high-bracket taxpayers.

patterns of absorption and displacement in financial portfolios. In the absence of definitive theoretical or empirical guidance in describing port-folio reallocations, these economists conjecture that investors will absorb new issues of tax-exempt bonds in proportions equal to those preexisting in the portfolios of households and institutions. Thus, they postulate that individual taxpayers respond to new issues of tax-exempt bonds by absorbing the additional supplies and reducing their holdings of corporate equity. In turn, pension funds purchase additional corporate equity and sell fully taxable bonds. Because pension funds pay no taxes on the income from their investments, the marginal tax rate of new investors in tax-exempt bonds is much lower than 30 percent and the revenue losses from their use is much less.3/

In fact, the portfolio adjustments that occur in response to new issues of tax-exempt bonds are more complex than either the original model or its proposed alternative implies. Neither model provides empirical evidence of the adjustments that take place. The first rests on an oversimplified view of investor behavior, while the second acknowledges the complexity of investor behavior, but provides no theory or facts to support the examples of portfolio adjustments that are assumed to occur. In the absence of empirical evidence, the appropriate marginal tax rate for estimating reve-nue losses from tax-exempt bonds is speculative; it might be higher or lower than the yield spread between tax-exempt and taxable securities.

For the present study, CBO has based its analysis on a general equilibrium model that simulates changes in the allocation of capital stock resulting from an increase in the supply of tax- exempt bonds.4/ This model--developed last year, updated more recently, and coupled with some sensitivity analysis--forms the basis of the estimates of revenue losses in

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3.   See especially Roger Kormendi and Thomas Nagle, "The Interest Rate and Tax Revenue Effects of Mortgage Revenue Bonds," in George G. Kaufman, ed., *Efficiency in the Municipal Bond Market: The Use of Tax-Exempt Financing for Private Purposes* (Greenwich, Connecticut: JAI Press, 1981). See also George D. Friedlander, John C. Morris, and Michael E. Toth, *Student Loan Revenue Bonds: An Examination of the Cost of Tax-Exempt Financing*, Smith Barney, Harris Upham & Company, Inc., Fixed Income Research (March 5, 1984).

4.   Eric Toder and Thomas S. Neubig, "Revenue Cost Estimates of Tax Expenditures: The Case of Tax-Exempt Bonds," *National Tax Journal*, vol. XXXVIII, no. 3 (September 1985), pp. 395-414.

this report (see Appendix A for details).5/   These analyses indicate that in estimating revenue losses from tax-exempt bonds, it has been appropriate to assume a marginal tax rate of between 25 percent and 35 percent.   These rates are higher than the 20 percent to 25 percent spread between tax-exempt and taxable financing in recent years, suggesting that individuals in higher tax brackets may be absorbing more new issues than income maximization theories alone would explain.

THE COSTS TO THE FEDERAL GOVERNMENT OF TAX-EXEMPT VERSUS TAXABLE FINANCING

Under most, but not all, circumstances, financing GSLs with tax-exempt bonds appears to be more expensive than using conventional financing. How much more expensive depends on general interest rate levels: the lower the T-bill rate, the greater the relative cost of using tax-exempt bonds. The comparison of different financing methods depends on how much the savings to the government resulting from the lower special allowance payment offset the costs of using tax-exempt bonds.   At T-bill rates below 7.5 percent, savings are nonexistent because of the SAP floor, which guarantees state authorities a minimum return on GSLs of 9.5 percent (see Chapter III). As T-bill rates rise above 7.5 percent, the savings from the lower SAP grow relative to the increases in the costs of tax-exempt financing, eventually reaching a point where taxable financing becomes the more expensive alternative.   (This happens because for every percentage point increase in T-bill rates, the reduced SAP rate will increase by one-half of a percentage point, while the interest rates that determine the costs of tax-exempt bonds will increase by a much smaller amount.)

The following tables show the absolute and comparative costs of tax-exempt and taxable financing of GSLs, using marginal tax rates ranging from 22.5 percent to 35 percent to estimate revenue losses and taking into account the reduced SAP for loans financed with tax-exempt bonds.   The comparative information is valid only to the extent that tax-exempt financing substitutes for taxable financing.   To the extent that tax-exempt bonds make possible more student loan borrowing than would otherwise occur, the federal government will incur additional costs.   These costs will be the sum of the revenue losses from using tax-exempt bonds and the special allowance (at one-half of the regular rate).

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5.   For a description of the updated model, see Harvey Galper, Robert Lucke, and Eric Toder, *Taxation, Portfolio Choice, and The Allocation of Capital: A General Equilibrium Approach*, Brookings Discussion Papers in Economics (Washington, D.C.: The Brookings Institution, March 1986).

Assuming a marginal tax rate of 22.5 percent, which is roughly equal to the differential in recent years between tax-exempt and taxable interest rates, would make tax-exempt financing 31 percent more costly when the T-bill is 5 percent and 2 percent less costly when the T-bill is 15 percent. Following this model, the difference in cost between tax-exempt and taxable financing is less than 5 percent once T-bill rates rise above 9 percent (see Table 6). Assuming a marginal tax rate of 25 percent, the cost of tax-exempt financing is 33 percent greater than taxable financing when the T-bill rate is 5 percent, but only 1 percent more expensive when the T-bill hits 15 percent (see Table 7). Assuming a 35 percent marginal tax rate, tax-exempt financing is 42 percent more costly when the T-bill is 5 percent and 13 percent more costly when the T-bill is 15 percent (see Table 8).

All of these cost comparisons are based on long-term financing, a GSL interest rate of 8 percent, and current tax law. When students start to repay their loans, the federal government's interest subsidy costs decline. At that point the differentials between taxable and tax-exempt financing would be greater, but the break-even points would be the same. The break-even points would be at lower interest rates, however, if the relative costs of tax-exempt financing decreased in response to legislation lowering marginal tax rates. The cost data are for GSLs and not for PLUS loans, which constituted only 7 percent of loan commitments in the first six months of fiscal year 1986. PLUS loans are also eligible for special allowances, but because the interest rate on the loans is currently 12 percent, the special allowance is smaller than for GSLs and hits zero when T-bill rates are 8.5 percent or lower. With PLUS loans, too, no in-school interest subsidy is paid. For these reasons, financing PLUS loans with tax-exempt bonds is considerably more expensive than using taxable funds (see Table 9). When T-bill rates are 9 percent, tax-exempt financing of PLUS loans is minimally six times more costly than taxable financing. At higher T-bill rates, the differentials are smaller. When T-bill rates are 15 percent, tax-exempt financing is between 26 percent and 68 percent more expensive. The volume of PLUS loans, however, has so far been small.

Tax-Exempt Financing without the SAP

Some authorities have chosen to issue tax-exempt bonds and to do without the SAP (see Chapter III). With no SAP, tax-exempt financing is on average no more expensive to the federal government than taxable financing. More often than not, it is less expensive (see Table 10).

Using a 35 percent marginal tax rate for estimating revenue losses from tax-exempt bonds, student loan bonds would be 24 percent more costly

TABLE 6.   ESTIMATED ANNUAL COSTS OF PROVIDING $1 BILLION IN 8
            PERCENT GSLs THROUGH TAXABLE VERSUS TAX-EXEMPT
            FINANCING ASSUMING A 22.5 PERCENT MARGINAL TAX RATE[a]
            (In millions of dollars)

T-Bill (percent)	Taxable Financing		Tax-Exempt Financing			Difference (percent)[e]
	SAP	SAP + I[b]	SAP + I[c]	Tax Expenditures[d]	Total	
5.0	5.0	85.0	95.0	16.5	111.5	+31.2
6.0	15.0	95.0	95.0	19.8	114.8	+20.8
7.0	25.0	105.0	95.0	23.0	118.0	+12.4
8.0	35.0	115.0	97.5	26.3	123.8	+ 7.7
9.0	45.0	125.0	102.5	29.6	132.1	+ 5.7
10.0	55.0	135.0	107.5	32.9	140.4	+ 4.0
11.0	65.0	145.0	112.5	36.2	148.7	+ 2.6
12.0	75.0	155.0	117.5	39.5	157.0	+ 1.3
13.0	85.0	165.0	122.5	42.8	165.3	+ 0.2
14.0	95.0	175.0	127.5	46.1	173.6	- 0.8
15.0	105.0	185.0	132.5	49.4	181.9	- 1.7

SOURCE: Congressional Budget Office.

a.   This comparison is based on the assumption that the ratio of bonds issued to loans made is 1.1:1.0. The unloaned proceeds are deposited in a reserve fund.

b.   The cost of conventionally-financed loans is the student interest payment plus the SAP. I = $1 billion x 8 percent. The SAP = $1 billion x (T-bill - 4.5) percent.

c.   The interest subsidy costs on loans financed with tax-exempt bonds are equal to the 8 percent student interest payment plus one-half of the regular SAP, but not less than 1.5 percent.

d.   Tax expenditures = $1 billion x [1.33 x T-bill] x 22.5 percent x 1.1. The revenue estimates are for long-term bonds. Long-term interest rates are assumed to be 1.33 times the T-bill, which reflects the average ratio of long-term AAA taxable bonds to the T-bill during the period 1982-1984. (Tax expenditures for short-term bonds would be based on lower interest rates and higher marginal tax rates.)

e.   Represents the excess cost (+) or savings (-) of tax-exempt versus taxable financing.

TABLE 7.   ESTIMATED ANNUAL COSTS OF PROVIDING $1 BILLION IN 8
            PERCENT GSLs THROUGH TAXABLE VERSUS TAX-EXEMPT
            FINANCING ASSUMING A 25 PERCENT MARGINAL TAX RATE[a]
            (In millions of dollars)

T-Bill (%)	Taxable Financing		Tax-Exempt Financing			Difference (%)[e]
	SAP	SAP + I[b]	SAP + I[c]	Tax Expenditures[d]	Total	
5.0	5.0	85.0	95.0	18.3	113.3	+33.3
6.0	15.0	95.0	95.0	22.0	117.0	+23.2
7.0	25.0	105.0	95.0	25.6	120.6	+14.9
8.0	35.0	115.0	97.5	29.3	126.8	+10.3
9.0	45.0	125.0	102.5	32.9	135.4	+ 8.3
10.0	55.0	135.0	107.5	36.6	144.1	+ 6.7
11.0	65.0	145.0	112.5	40.2	152.7	+ 5.3
12.0	75.0	155.0	117.5	43.9	161.4	+ 4.1
13.0	85.0	165.0	122.5	47.6	170.1	+ 3.1
14.0	95.0	175.0	127.5	51.2	178.7	+ 2.1
15.0	105.0	185.0	132.5	54.8	187.3	+ 1.2

SOURCE: Congressional Budget Office.

a.   The ratio of bonds issued to loans made is 1.1:1.0.

b.   The cost of conventionally-financed loans is the student interest payment plus the SAP. I = $1 billion x 8 percent. The SAP = $1 billion x (T-bill - 4.5) percent.

c.   The interest subsidy costs on loans financed with tax-exempt bonds are equal to the 8 percent student interest payment plus one-half of the regular SAP, but not less than 1.5 percent.

d.   Tax expenditures = $1.1 billion x [1.33 x T-bill] x 25 percent x 1.1. The revenue estimates are for long-term bonds. Long-term interest rates are assumed to be 1.33 times the T-bill, which reflects the average ratio of long-term AAA taxable bonds to the T-bill during the period 1982-1984. (Tax expenditures for short-term bonds would be based on lower interest rates and higher marginal tax rates.)

e.   Represents the excess cost (+) or savings (-) of tax-exempt versus taxable financing.

TABLE 8.   ESTIMATED ANNUAL COSTS OF PROVIDING $1 BILLION IN 8
            PERCENT GSLs THROUGH TAXABLE VERSUS TAX-EXEMPT
            FINANCING ASSUMING A 35 PERCENT MARGINAL TAX RATE[a]
            (In millions of dollars)

T-Bill (%)	Taxable Financing		Tax-Exempt Financing			Difference (%)[e]
	SAP	SAP + I[b]	SAP + I[c]	Tax Expenditures[d]	Total	
5.0	5.0	85.0	95.0	25.6	120.6	+42.1
6.0	15.0	95.0	95.0	30.7	125.7	+32.3
7.0	25.0	105.0	95.0	35.6	130.6	+24.4
8.0	35.0	115.0	97.5	41.0	138.5	+20.4
9.0	45.0	125.0	102.5	46.1	148.6	+18.9
10.0	55.0	135.0	107.5	51.2	158.7	+17.6
11.0	65.0	145.0	112.5	56.3	168.0	+16.4
12.0	75.0	155.0	117.5	61.5	179.0	+15.5
13.0	85.0	165.0	122.5	66.6	189.1	+14.6
14.0	95.0	175.0	127.5	71.7	199.2	+13.8
15.0	105.0	185.0	132.5	76.8	209.3	+13.1

SOURCE: Congressional Budget Office.

a.   The ratio of bonds issued to loans made is 1.1:1.0.

b.   The cost of conventionally-financed loans is the student interest payment plus the SAP. I = $1 billion x 8 percent. The SAP = $1 billion x (T-bill - 4.5) percent.

c.   The interest subsidy costs on loans financed with tax-exempt bonds are equal to the student loan interest payment of 8 percent, plus one-half the regular SAP, but not less than 1.5 percent.

d.   Tax expenditures = $1.1 billion x [1.33 x T-bill] x 35 percent x 1.1. The revenue estimates are for long-term bonds. Long-term interest rates are assumed to be 1.33 times the T-bill, which reflects the average ratio of long-term AAA taxable bonds to the T-bill during the period 1982-1984. (Tax expenditures for short-term bonds would be based on lower interest rates and higher marginal tax rates.)

e.   Represents the excess cost (+) or savings (-) of tax-exempt versus taxable financing.

TABLE 9.   ESTIMATED ANNUAL COSTS OF PROVIDING $1 BILLION
              IN 12 PERCENT **PLUS** LOANS THROUGH TAXABLE
              VERSUS TAX-EXEMPT FINANCING ASSUMING
              MARGINAL TAX RATES BETWEEN 22.5
              AND 35.0 PERCENT

T-Bill (percent)	Taxable Financing[a]	Tax-Exempt Financing[b]	Tax-Exempt Financing[c]
5.0	--	16.5	25.6
6.0	--	19.8	30.7
7.0	--	23.0	35.6
8.0	--	26.3	41.0
9.0	5.0	32.1	48.6
10.0	15.0	40.4	58.7
11.0	25.0	48.7	68.8
12.0	35.0	57.0	79.0
13.0	45.0	65.3	89.1
14.0	55.0	73.6	99.2
15.0	65.0	81.9	109.3

SOURCE: Congressional Budget Office.

a. ,   Taxable financing costs consist of the SAP, which is equal to T-bill -8.5 percentage points.

b.   Tax-exempt financing costs consist of one-half of the regular SAP plus tax expenditures assuming a marginal tax rate of 22.5 percent.

c.   Tax-exempt financing costs consist of one-half of the regular SAP plus tax expenditures assuming a marginal tax rate of 35 percent.

TABLE 10. ESTIMATED ANNUAL COSTS OF PROVIDING $1 BILLION IN 8 PERCENT GSLs THROUGH TAXABLE FINANCING VERSUS TAX-EXEMPT FINANCING WITH NO SPECIAL ALLOWANCE PAYMENT AT DIFFERENT MARGINAL TAX RATES (In millions of dollars)

T-Bill (percent)	Taxable Financing[a]	Marginal Tax Rate of 22.5 Percent		Marginal Tax Rate of 25 Percent		Marginal Tax Rate of 35 Percent	
		Tax-Exempt Financing[b]	Difference (percent)	Tax-Exempt Financing[c]	Difference (percent)	Tax-Exempt Financing[d]	Difference (percent)
5.0	85.0	96.5	+13.5	98.3	+15.6	105.6	+24.2
6.0	95.0	99.8	+5.0	102.0	+6.7	110.7	+16.5
7.0	105.0	103.0	-1.9	105.6	+0.6	115.6	+10.1
8.0	115.0	106.3	-7.6	109.3	-5.0	121.0	+5.2
9.0	125.0	109.6	-12.3	112.9	-9.7	126.1	+0.9
10.0	135.0	112.9	-16.4	116.6	-13.6	131.2	-2.8
11.0	145.0	116.9	-19.4	120.2	-17.1	136.3	-6.0
12.0	155.0	119.5	-22.9	123.9	-20.1	141.5	-8.7
13.0	165.0	122.8	-25.6	127.6	-22.7	146.6	-11.2
14.0	175.0	126.1	-27.9	131.2	-25.0	151.7	-13.3
15.0	185.0	129.4	-30.1	134.8	-27.1	156.8	-15.2

SOURCE: Congressional Budget Office.

a. Taxable financing equals the SAP plus interest costs of $80 million.

b. Tax-exempt financing equals interest costs of $80 million plus tax expenditures based on a marginal tax rate of 22.5 percent.

c. Tax-exempt financing equals interest costs of $80 million plus tax expenditures based on a marginal tax rate of 25 percent.

d. Tax-exempt financing equals interest costs of $80 million plus tax expenditures based on a marginal tax rate of 35 percent.